

Michigan New Energy Policy Stakeholder Group

October 19, 2015



Opower's customer engagement platform

Pioneers in Energy Efficiency



Opower Today

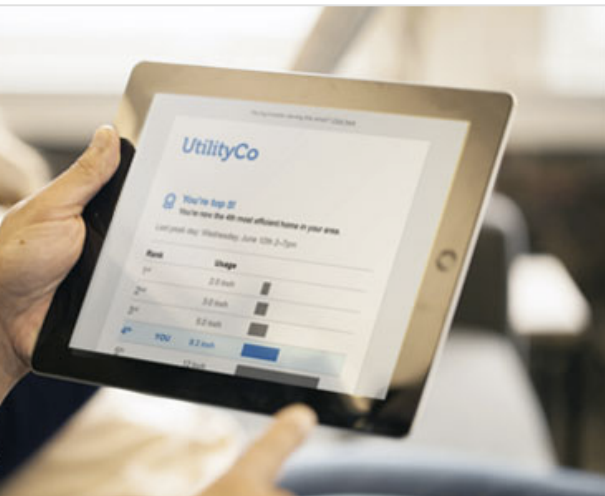
- Serving **95** utilities in **8** countries
- **22M+ Households** on the Platform
- **50M Reports** delivered annually
- **50% of US energy data** under management
- **500+ Employees**; Offices in Washington, San Francisco, London, Singapore, and Tokyo

Our results

- 3.7 TWh of savings,
- \$410M in bill savings
- 5.7 billion lbs. of CO2 abated

Behavioral Demand Response

Peak day notification



- » Targeted communication
- » Channel of choice
- » Opt-out program design

Personalized adjustments



- » Large-scale engagement
- » Access to more load
- » Highly accurate EM&V

Post-event feedback

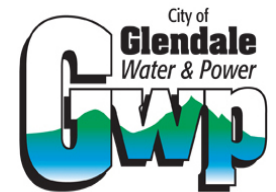
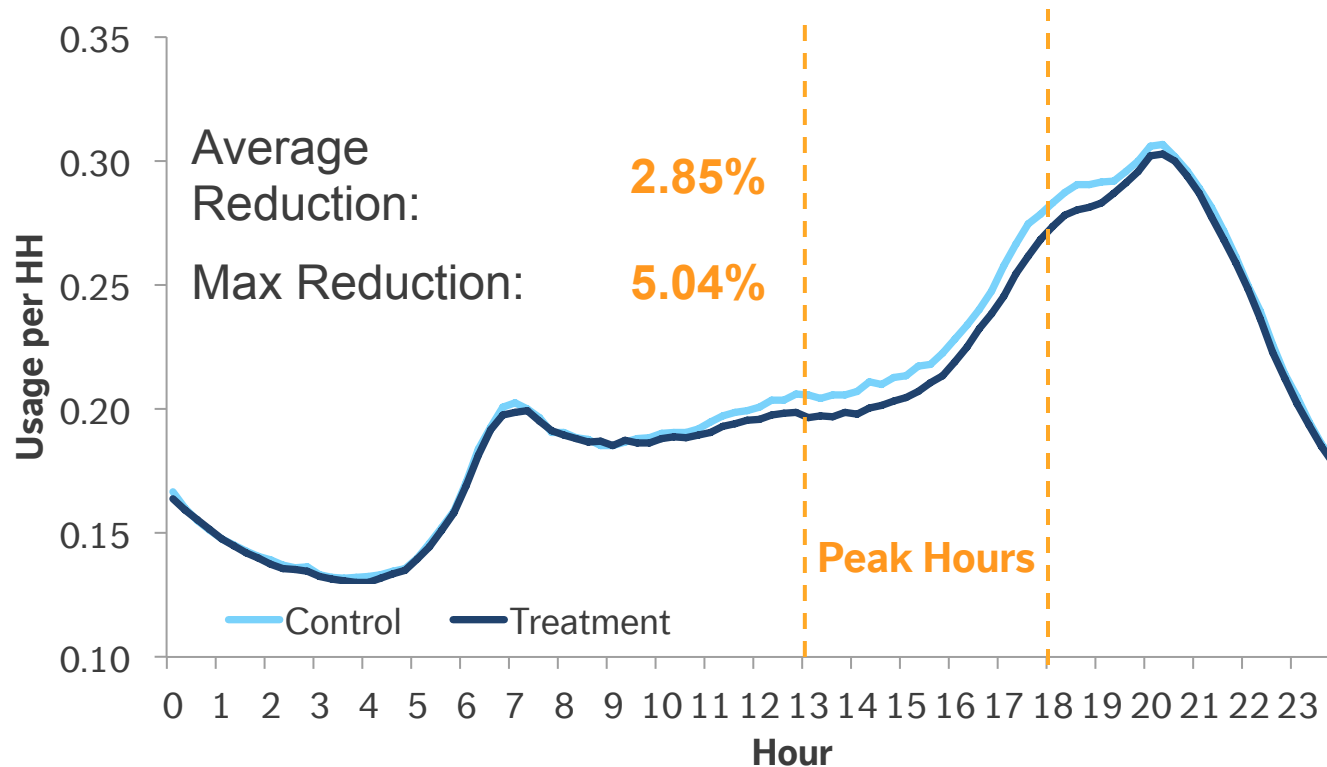


- » Immediate feedback
- » Highly personalized results
- » Ongoing encouragement

BDR Result:

Large scale peak savings without a device or price

Performance across 10 events, 3 utilities



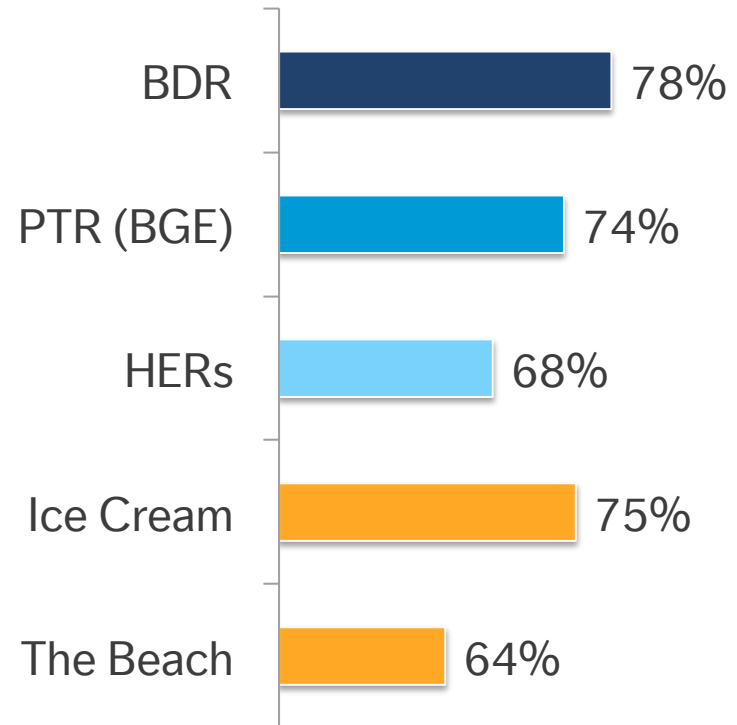
BDR Result:

Measurable savings, engaged customers

Can Demand Response be engaging?

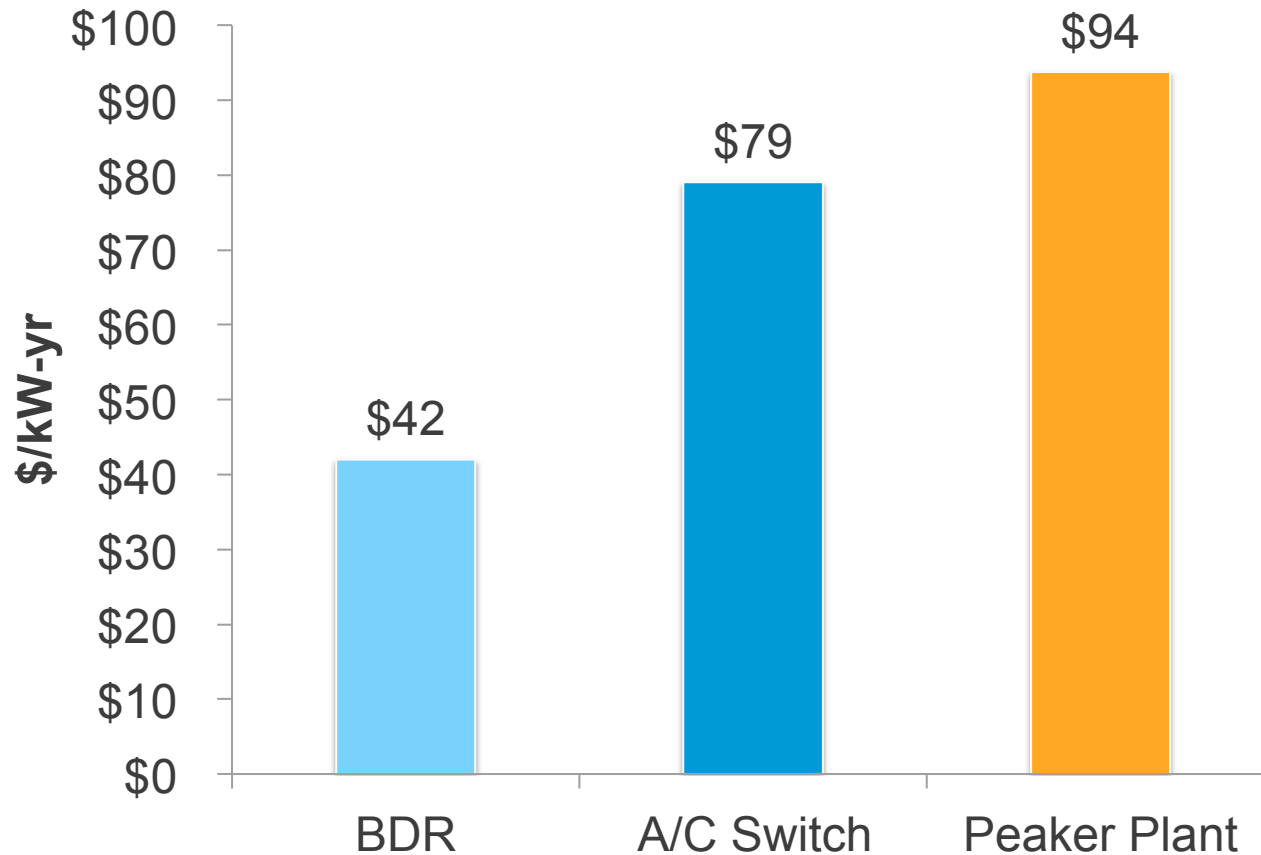


Customer Satisfaction (% rating 4 or 5 on 1-5 scale)



Appendix

Cost-effective capacity resource



- » BDR is 67% less expensive than A/C switches
- » BDR is 72% less expensive than a peaking plant

Motivating customers isn't always intuitive



FINANCIAL REWARD

\$25 reward for
program enrollment

VS.

4X
MORE EFFECTIVE



SOCIAL PROOF

Program signup sheets
placed in public areas

M&V Step 1: Customer-Level Regression Baselines

Measures difference in treatment and control household usage during event hours in conditional on:



Recent hourly customer usage

Usage during event hours in the same day of the week in four weeks prior to BDR season



Hourly usage in the same month last year (when available)

Usage during event hours in the same day of the week of the same month last year

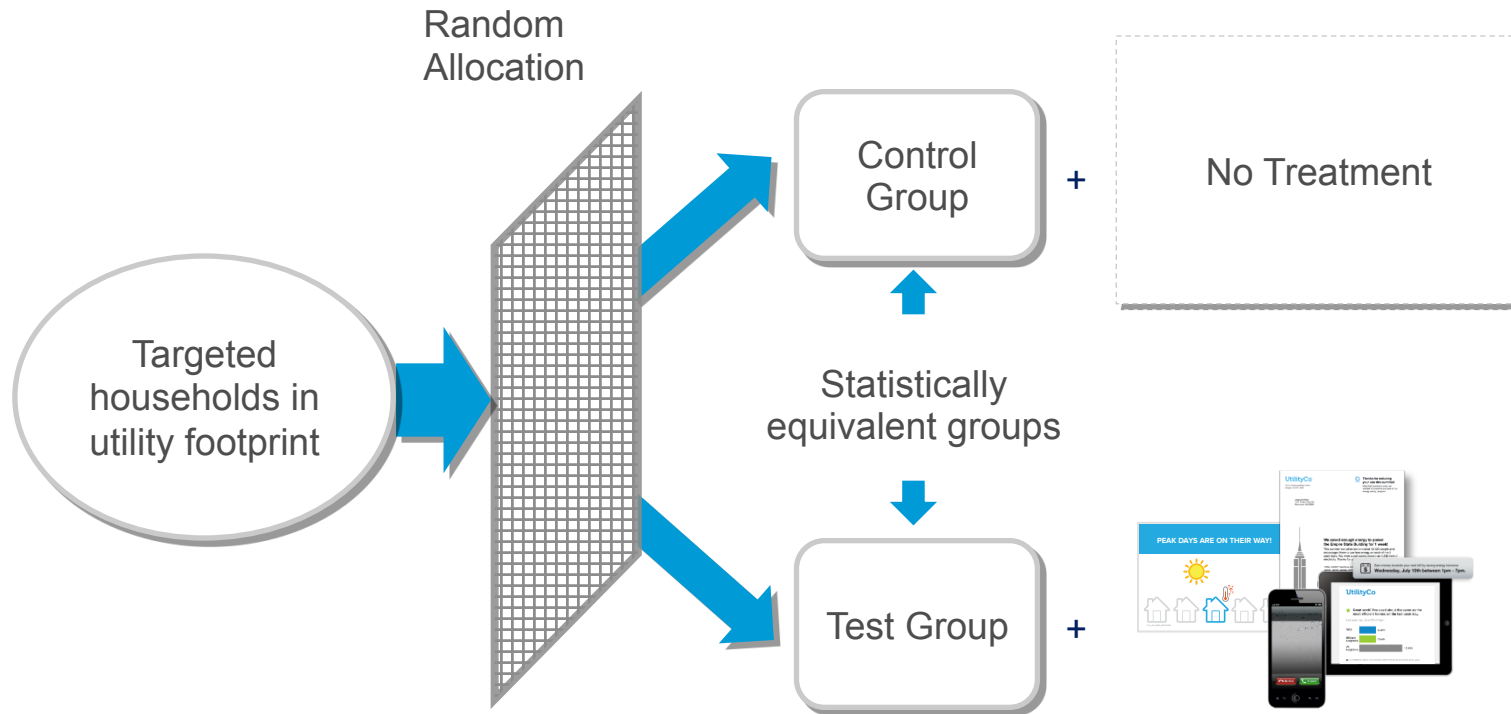


Average seasonal usage

Average summer, winter, and annual usage in the year prior to the BDR season

Sensitivity Analysis: Ensure results robust to alternate specifications

M&V Step 2: Randomized Controlled Trial



Large-Scale Data Analysis

- » Follows experimental design blueprint
- » Clearly isolates impact of BDR
- » Follows NAEPP guidelines
- » Endorsed by ACEEE, DOE
- » Used in PUC filings for behavioral programs in dozens of states

Illustrative Example: Combining RCT with Baseline Usage in a Simple Diff-in-Diff Model

